

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

ON SEMICONDUCTOR CORPORATION  
and SEMICONDUCTOR COMPONENTS  
INDUSTRIES, LLC,

Plaintiffs,

v.

POWER INTEGRATIONS, INC.,

Defendant.

**REDACTED PUBLIC  
VERSION**

C.A. No. 17-247-LPS

**OPENING BRIEF IN SUPPORT OF  
PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT**

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Plaintiffs ON Semiconductor Corporation and Semiconductor Components Industries, LLC's (collectively Plaintiffs or "ON") respectfully request that the Court enter summary judgment as set out below.

**A. ON Does Not Infringe PI's '483 and '871 Patents**

Because PI no longer asserts U.S. Patent Nos. 8,077,483 (the '483 patent) and 8,773,871 (the '871 patent), ON requests that the Court enter summary judgment in ON's favor with respect to PI's claim for infringement. In September 2017, PI asserted counterclaims of infringement of seven PI patents. D.I. 34. Counterclaim Counts 1 and 2 were PI's infringement claims on the '483 patent and '871 patents, respectively. *Id.* at pp. 18 and 23. PI served initial infringement contentions for the '483 and '871 patents in January 2018 and ON served responsive invalidity contentions in February 2018. When PI served final infringement contentions on November 30, 2018, PI did not include infringement contentions for the '483 or '871 patents. PI's Disclosure of Amended Claim Charts, Ex. 1 (identifying final charts for all asserted patents but not the '483 or '871 patents). ON subsequently asked PI to confirm that PI was dropping the '483 and '871 patents from the lawsuit. After some prodding, PI's counsel responded:

We've reviewed your e-mail and letter – thank you for confirming which infringement claims / patents ON is not going forward with. I can similarly confirm that, to streamline the issues in this case, and in view of the Court's constructions, PI has focused its contentions as set forth in our final contentions served on Nov. 30 (which do not include an assertion of PI's '871 or '483 patents, or claims 13 and 14 of PI's '851 patent).

December 12, 2018 e-mail from Michael Headley, counsel to Power Integrations, to Roger Fulghum, Ex. 2. Later, in April of this year, PI served its infringement expert report of Dr. Arthur Kelley. Dr. Kelley does not provide an infringement analysis for either of the '483 or '871 patents in this report (or even mention those patents). Dr. Kelley's Opening Expert Report on Infringement, Ex. 3 at i-ii (identifying Dr. Kelley's infringement analyses in the Table of Contents

with no mention of the '483 or '871 patents).

Because PI has no infringement contentions and no expert report as to the '483 and '871 patents, PI cannot meet its burden of proving infringement of those patents. The facts here line up with the facts in *Personalized User Model, L.L.P. v. Google, Inc.*, C.A. No. 09-525-LPS, D.I. 527 (D. Del. Sep. 20, 2013). Ex. 4. In *Personalized*, the patent holder dropped its claims concerning the '031 patent. *Id.* at p. 8. After rejecting the patent holder's argument that the Court could not enter summary judgment of noninfringement on a patent the plaintiff had "withdrawn," the Court held that summary judgment was proper because there was no evidence to support a finding of infringement on the '031 patent. *Id.* at pp. 8-9. The same reasoning and result apply in this case. With no infringement contentions and no expert report on the '483 and '871 patents, PI has no evidence to support a finding of infringement on those patents. ON respectfully requests that the Court enter summary judgment of noninfringement as to the '483 and '871 patents.

**B. The Damages Period for PI's '851 and '366 Patents is Limited Due to the Absence of Both Marking and Actual Notice From PI**

PI alleges that its products practice the asserted claims of U.S. Patent Nos. 6,107,851 ("the '851 patent") and 6,229,366 ("the '366 patent") (*see* PI's Supplemental Responses and Objections to ON's First Interrogatories, Ex. 5 at pp. 21-22), but PI has never marked any of its practicing products with either patent number. March 26, 2019 Deposition of PI's CEO Balu Balakrishnan, Ex. 6. at 241:2-11. Section 287 thus limits PI's recoverable damages to allegedly infringing acts that occurred after PI provided actual notice to ON:

In the event of failure so to mark, no damages shall be recovered by the patentee in any action for infringement, except on proof that the infringer was notified of the infringement and continued to infringe thereafter, in which event damages may be recovered only for infringement occurring after such notice. Filing of an action for infringement shall constitute such notice.

35 U.S.C. § 287. The “such notice” required by Section 287 requires an “affirmative communication” from the patentee to the alleged infringer. *Amsted Indus. Inc. v. Buckeye Steel Castings Co.*, 24 F.3d 178, 187 (Fed. Cir. 1994). Thus, if PI cannot demonstrate that it provided actual notice to ON before filing its infringement claims against ON, PI’s failure to mark its practicing products prevents PI from recovering damages before September 29, 2017, the date that PI filed its infringement counterclaims against ON. D.I. 34.

PI, however, appears to seek damages going back several years before that date. In an unverified interrogatory response from January 2019, PI stated that it is “entitled to damages since June 16, 2014, when Power Integrations notified ON of its infringement of those patents.” Ex. 5 at pp. 26-27. June 16, 2014 is the date that PI’s President and CEO, Balu Balakrishnan sent an e-mail to ON’s President and CEO, Keith Jackson. The entire content of the e-mail is below:

Hi Keith,

It was nice talking to you on Saturday. As promised, I have attached the patents related to NCP1246.

Our initial review of NCP1246 data sheet indicates that patent numbers ending in 079, 457 and, 851 and/or 876 are infringed. It is likely that patent numbers ending in 855 and/or 114 and, 366 and/or 851 are also infringed but, that would require additional investigation to confirm.

Regards,

Balu

Rule 408 Communication E-mail, Ex. 7 (Ex. 8 to January 16, 2019 Balakrishnan deposition). After this June 2014 e-mail, ON and PI had an in-person meeting in September 2014.<sup>1</sup>

Over the course of recent discovery—and despite PI’s unverified interrogatory response—PI’s lawyers and senior executives have taken the position that the 2014 communications (i) are affirmatively **not** actual notice and (ii) are settlement communications protected by Rule 408 and

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<sup>1</sup> During discovery, ON and PI have referred to ON and PI’s dealings in 2014 as the “2014 communications” and ON will do the same in this motion.



therefore not usable for any purpose in this litigation. PI affirmatively disclaimed that the June 16, 2014 e-mail, or any of the other 2014 communications, qualifies as actual notice. On April 16, 2019 (months after PI served its interrogatory response), ON deposed Clifford Walker, who is PI's Vice-President of Corporate Development and responsible for PI's legal affairs, including this lawsuit. PI designated Mr. Walker on Rule 30(b)(6) topics related to whether PI provided ON with actual notice, including the factual basis for such notice. *See* PI's Response to ON's Rule 30(b)(6) Deposition Notice, Ex. 8, at p. 10. During the deposition, Mr. Walker clearly and affirmatively testified under oath, without any objections, that none of the communications from PI to ON in 2014 constituted actual notice:

Q: Is it Power Integrations' position that the activities in 2014 between ON Semiconductor and Power Integrations did not constitute actual notice of infringement of the Power Integrations' patents to ON Semiconductor?

A: Yes.

...

Q: What is your intent, as the Power Integrations' officer, managing this litigation, as to whether or not [the 2014] communications should constitute notice of infringement in either the California case or the Delaware case?

A: My intent at the time was that these were settlement discussions and neither party would be — would result in receiving notice from the discussions.

Q: And do you maintain that intent today?

A: I do.

Dep. of Cliff Walker, Ex. 9 at 263:12-17; 267:24-268:10. It is hard to imagine testimony that could be clearer in disclaiming actual notice, especially considering that Mr. Walker testified as PI's corporate representative on that exact issue. As PI's corporate representative on the topics relating to PI's notice to ON, Mr. Walker was required to be prepared to testify on the facts PI alleges support its claim of actual notice. PI cannot now offer another witness at trial to say that the same facts disclaimed by Mr. Walker are the basis for its actual notice. Moreover, when Mr. Walker was

pressed for any other evidence that PI provided ON with actual notice, he did not identify anything other than the 2014 communications. *Id.* at 260:18-262:3 (A: “No, I believe that’s it.”).

Because PI has taken the unmistakable position that the 2014 communications do not constitute actual notice and because PI did not mark its practicing products, PI cannot seek damages for alleged infringement of the ’851 and ’366 patents before the filing of PI’s counterclaim of infringement on September 29, 2017. D.I. 34. PI’s party admissions that the 2014 communications were not intended to provide ON with actual notice of infringement to ON are controlling and preclude PI from arguing to the contrary. ON has been unable to find any reported decision in which a party disclaimed that a communication was intended to provide actual notice and was later allowed to rely on that same communication to establish actual notice. Here, PI’s affirmative disclaimer of actual notice by its corporate representative is binding on PI and its unverified interrogatory response cannot undo the sworn deposition testimony by its 30(b)(6) witness as to the factual bases for its claim of actual notice.

Separately, in addition to PI’s admissions that the June 2014 e-mail does not constitute actual notice, PI also claimed that the 2014 communications are settlement communications protected by Rule 408. First, in a January 2019 deposition of Mr. Balakrishnan, PI’s counsel objected under Rule 408 to questions and testimony concerning the 2014 communications:

MR. POLLACK: I’m just going to interpose an objection to the questions about this. You know, Power Integrations’ position has been that the exchange with Mr. Jackson was subject to 408, and so we’re just going to state that objection.

I’m not going to prevent you from taking discovery on it, but we don’t think that the interactions that occurred associated with this event are usable for any purpose in this litigation.

Jan. 16, 2019 Dep. of Mr. Balu Balakrishnan, Ex. 10 at 27:9-17. Shortly after this objection, Mr. Balakrishnan testified that the June 2014 e-mail was a 408 communication:

Q: You do recall that there was a telephone call?

A: Yes.

...

Q: Do you recall –

A: And by the way, we also discussed that this will be confidential. Before we started, we said, “I’d like to have confidential discussions with you under 408.”

...

Q: Was – you’re familiar with the term “408,” right?

A: At a high level, yes.

Q: And what is your understanding at a high level? I know you’re not an attorney, but what’s your understanding at a high level?

A: My understanding is that you can have settlement agreements under a 408 agreement that prevents use of those discussions or any – anything that happens during the settlement in the Courts.

...

Q: And you would also say that that June 2014 email of Exhibit 8 was a 408 communication?

A: Yes.

*Id.* at 34:3-5; 34:25-35:4; 102:3-12, 20-22 (Ex. 8 of the deposition is the June 16, 2014 e-mail and is attached as Ex. 7). ON agrees with PI that the June 16, 2014 e-mail is not usable for any purpose at trial, including demonstrating the date of actual notice for the purpose of calculating the amount of and the beginning date for PI’s alleged damages on the ’851 and ’366 patents. Because both sides agree that the June 2014 e-mail is a Rule 408 communication, it cannot be used by either party to prove the **amount** of a disputed claim. *See id.* at 27:9-17.

ON has been unable to find any reported decision in which a patent holder was permitted to rely on an admitted Rule 408 communication that the patent owner testified was not intended to provide actual notice as actual notice to prove the amount of the patent holder’s damages, and for good reason. The policy of Rule 408 would be violated if a patent holder could transmit a Rule 408 communication and later rely on that communication for the sake of actual notice under Section 287, but still shield itself from the use of the communication for other purposes. The purpose of Rule 408 is to permit parties to communicate freely for the purpose of compromise and

settlement. If a patent holder could start the infringement clock under the guise of a Rule 408 communication, accused infringers would no longer participate in Rule 408 communications for fear of initiating the infringement clock.

Having taken the position that Rule 408 applies to the 2014 communications (and even testifying that the parties reached an understanding on that point), PI cannot now rely on those communications for actual notice. Rule 408 is thus an independent, additional reason PI should not be allowed to rely on the 2014 communications to prove actual notice. Without the 2014 communications, PI has no proof of actual notice, and the damages period for the '851 and '366 patents should begin on the filing date of PI's counterclaims, September 29, 2017. D.I. 34.

Even if, however, the Court is inclined to allow PI to introduce the June 2014 e-mail and the other 2014 settlement communications in front of the jury to try to show actual notice to ON in support of PI's damages claim, PI should be limited to using such communications for the one specific ON product referenced in those communications. "Actual notice requires the affirmative communication of a specific charge of infringement *by a specific accused product or device.*" *Amsted Indus.*, 24 F.3d at 187 (emphasis added). The only product referenced in PI's June 2014 e-mail is ON's NCP1246 product, and PI's witnesses have consistently confirmed that the only ON product mentioned by PI during the 2014 settlement discussions was the NCP1246. *See, e.g.*, Ex. 9 at 274:11-25 (Mr. Walker testifying that he was unable to recall any products discussed other than the NCP1246). At a minimum, ON requests that the Court rule that PI did not provide actual notice of infringement for either the '851 or '366 patent for any product other than the NCP1246. *See Gart v. Logitech, Inc.*, 254 F.3d 1334, 1347 (Fed. Cir. 2001) (affirming summary judgment limiting period of damages to begin with the filing of the complaint for products not referenced in a pre-suit letter).

### C. ON Has Not Infringed PI's Expired '851 Patent

PI asserts U.S. Patent No. 6,107,851 against ON. Although PI asserted the expired '851 patent in other lawsuits involving Fairchild, PI has not previously asserted the claims in this lawsuit (claims 20 and 16). Claim 20 is an independent claim and was added in reexamination. '851 patent, Ex. 11, Ex Parte Reexamination Certificate at 2:23-45. Dependent claim 16 was amended in reexamination to depend from claim 20 (despite having a lower number). *Id.* at 1:44-47.

Claim 20 requires an oscillator that provides two signals: an “oscillation signal” and a “maximum duty cycle signal”:

20. A regulation circuit, comprising:

...

an *oscillator that provides an oscillation signal* having a frequency range, said frequency of said oscillation signal varying within said frequency range according to said frequency variation signal, *said oscillator further providing a maximum duty cycle signal* comprising a first state and a second state; and . . .

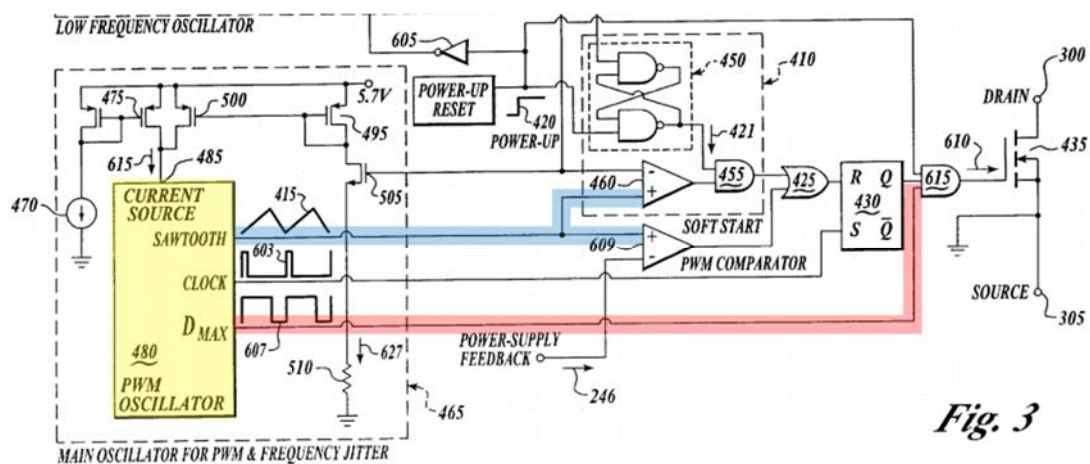
*Id.* at 2:23-45 (emphasis added). The intrinsic record establishes that these two signals are two *separate* signals, and PI has advanced that interpretation for similar terms in different '851 patent claims in previous litigation before this Court. PI and its expert, however, now identify only a single signal in the accused ON products as constituting both the “oscillation signal” and “maximum duty cycle signal.” PI thus cannot prove that ON has literally infringed claim 20. And because PI added the “oscillator” limitation to the claim by amendment to overcome a prior art rejection, PI's alternative doctrine of equivalents theory is barred by prosecution history estoppel. Claim 16 depends from claim 20 and is thus not infringed for the same reasons.

#### 1. The claims require an oscillator that provides both an “oscillation signal” and a separate “maximum duty cycle signal”

Claim 20 recites an “oscillator that provides an oscillation signal” and “further provid[es] a maximum duty cycle signal.” Ex. 11, Ex Parte Reexamination Certificate at 2:37-42. According

to the claim language, the “oscillation signal” and the separately identified “maximum duty cycle signal” are two distinct signals. The separateness of the signals is emphasized by the structure of the claim. After the first signal is introduced, the claim language states that the oscillator “further provid[es]” the second signal, indicating to the reader that the second signal is something different and in addition to the first signal. “Where a claim lists elements separately, the clear implication of the claim language is that those elements are distinct component[s] of the patented invention.” *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (quotation omitted). Indeed, PI previously characterized the “oscillation signal” and “maximum duty cycle signal” as separate limitations of similar claims PI asserted against Fairchild. *See* PI’s Answering Brief in Opposition in Case No. 04-cv-1371-JJF (D. Del. Dec. 10, 2007) (D.I. 620), Ex. 12 at p. 13 (listing the two signals as two of three separate limitations).

The specification of the '851 patent further supports that plain meaning. In all three figures depicting the oscillator, the oscillator provides both a “pulse width modulation oscillation signal 415” (“SAWTOOTH”) and a separate “maximum duty cycle signal 607” (“D<sub>MAX</sub>”). Ex. 11 at Figs. 3, 6, and 9; 8:48-49 and 8:63. This is shown in the annotated excerpt of Figure 3 below:



*See also* Zane Decl., Ex. 13 at ¶ 23.

The specification of the '851 patent uses consistent terminology and numbering to distinguish between the two signals and never even suggests that these two signals may, in fact, be a single signal. That the two recited signals are different and distinct is further demonstrated by the fact that, in every embodiment, the two signals are used for different purposes—oscillation signal 415 is used for soft start and pulse-width modulation (PWM) while maximum duty cycle signal 607 is used to limit the maximum duty cycle. Ex. 13, at ¶ 30. Further, the two signals have a different format—oscillation signal 415 is an analog sawtooth waveform while maximum duty cycle signal 607 is a digital signal. *See, e.g.*, Ex. 11, Fig. 3.

The prosecution history and PI's litigation history confirm this meaning. PI added claim 20 during reexamination as a replacement for original claim 11. Second Amendment and Response After Final in Reexamination 90/008324, Ex. 14 at p. 2 (proposing new independent claims 19 and 20 “added in lieu of canceled claims 1 and 11, respectively”). Important to this motion, claim 20 retained the “oscillator” limitation of claim 11, which was added to claim 11 by amendment during the original prosecution to distinguish that claim over prior art. PI argued that, unlike the prior art, the oscillator of claim 11 provides *both* an oscillation signal and a maximum duty cycle signal, and that both signals have a frequency range that is varied according to a frequency variation signal:

Claim 29 [which issued as claim 11] as presently amended now expressly recites a regulation circuit that includes *an oscillator that provides a maximum duty cycle signal and an oscillation signal* having a frequency range that is varied according to a frequency variation signal. The Applicant's Prior Art Figure 1 fails to disclose, teach, or suggest such limitations.

Amendment and Response in Initial Prosecution 90/080,774, Ex. 15 at pp. 3, 6 (emphasis added). PI has repeated that description of its claims in this Court. During a previous lawsuit, Fairchild accused PI of committing inequitable conduct for not disclosing that the prior art includes the

claimed oscillator. *See* Ex. 12 at p. 1. In response, PI told this Court that, “[a]lthough an ‘oscillator for generating a maximum duty cycle signal’ was well known in the art, an oscillator that both generated a maximum duty cycle signal **and** a second signal, and did so ‘with a frequency range dependent on a frequency variation circuit’ was novel and not obvious.” *Id.* at p. 10 (emphasis in original). The Court accepted PI’s description of its claims and held that PI did not commit inequitable conduct because the ’851 patent claims require “a single oscillator generating **multiple signals** whose frequency varied in a range based on a frequency variation signal.” *Power Integrations, Inc. v. Fairchild Semi. Int’l, Inc.*, 578 F. Supp. 2d 698, 704 (D. Del. Sept. 24, 2008) (emphasis added). Having prevailed on the “multiple signals” argument to defeat a claim of inequitable conduct, PI is judicially estopped from now arguing that the ’851 patent claims cover an oscillator that provides only a single signal. *See, e.g., New Hampshire v. Maine*, 532 U.S. 742, 749 (2001) (“[W]here a party assumes a certain position in a legal proceeding, and succeeds in maintaining that position, he may not thereafter, simply because his interests have changed, assume a contrary position.” (internal quotations omitted)).

In summary, the claim language, intrinsic record, and PI’s own representations to the Patent Office and this Court establish that the “oscillation signal” and “maximum duty cycle signal” provided by the oscillator in claim 20 must be two separate signals (*see* Ex. 13 at ¶ 42), and PI is judicially estopped from contending otherwise.

**2. PI cannot show that the accused ON products literally infringe claim 20.**

**a. PI does not identify an oscillator that provides both an “oscillation signal” and a separate “maximum duty cycle signal.”**

PI accuses more than forty ON products of infringing the ’851 patent but analyzes only four allegedly “representative” products: NCP107X, NCP1246, NCP1027, and NCP1219. *See*,



*e.g.*, Exhibit D to PI’s Final Infringement Contentions, Ex. 16 at pp. 1-3, n.1-4. For each of the four representative products, PI identifies a single signal output from the oscillator as both the “oscillation signal” and “maximum duty cycle signal.” In the NCP107X, for example, PI’s infringement contentions identified [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Dr. Kelley's opening report tracks PI's infringement contentions. *See* Kelley Infringement Chart for '851 Patent, Ex. 18 at pp. 42-43, 45, 47-48, and 49-51; *see also* Ex. 13 at ¶ 25.

In sum, PI and Dr. Kelley mapped a single signal in each of the accused products to both the "oscillation signal" and "maximum duty cycle signal" limitations. Because claim 20 recites two signals, PI cannot prove that ON literally infringed expired claim 20 or dependent claim 16.

**b. Dr. Kelley's edges-as-signals theory is an improper new theory on reply and does not identify both an "oscillation signal" and a separate "maximum duty cycle signal."**

After the parties exchanged rebuttal expert reports, PI realized that its infringement case had the fatal problem described above—namely, that the "one signal" infringement theory included in its infringement contentions and Dr. Kelley's opening report did not match the scope of claim 20. Faced with this flaw, Dr. Kelley, on reply, proposed a new theory to map the *two* claimed signals to the *one* signal he previously identified as both the "oscillation signal" and the "maximum duty cycle signal." Dr. Kelley's attempt to repair PI's infringement theory on reply is an improper new argument and, in any event, fails on the merits.

Dr. Kelley opined for the first time in his reply report that "[t]he oscillator in the accused ON products provides a signal that has two edges – the first edge is an oscillation signal that is used to turn on the switch, and the trailing edge is a maximum duty cycle signal that ensures that the switch turns off when the power supply's maximum duty cycle has been reached." Dr. Kelley's Reply Report, Ex. 19 at ¶ 5. Dr. Kelley's two-edges-equals-two-signals theory is entirely new to his reply report. Neither his opening report nor PI's infringement contentions include that theory.

Dr. Kelley’s new mapping of the recited signals to different “edges” of the identified signal in the accused ON products is improper, late, and should be struck. Reply reports are not permitted as a vehicle to inject new opinions or evidence into a case late in expert discovery after the opposing party’s reports have been served. *See* D. Del. LR 7.1.3(c)(2) (material shall not be reserved for a reply brief that “should have been included in a full and fair opening brief.”); *Oracle Am. v. Google, Inc.*, No. C 10-03561 WHA, 2011 WL 5572835, at \*3 (N.D. Cal. Nov. 15, 2011) (reply reports not intended for “‘sandbagging’ by a party with the burden of proof who wishes to save its best points for reply, when it will have the last word”). Contrary to Dr. Kelley’s assertions, his Opening Report did not identify the first edge and trailing edge of any signal in the accused ON products as the alleged “oscillation signal” or “maximum duty cycle signal.” Indeed, the notion that two edges of a single signal are themselves two different signals contradicts the Opening Report’s identification of an entire square wave signal—not merely one of its edges—as the alleged “oscillation signal.”



Ex. 18 at p. 44.

An untimely expert opinion may be excluded where, as here, disclosure violates a scheduling order and the error is not harmless. *U.S. v. 68.94 Acres of Land*, 918 F.2d 389, 396-97 (3d Cir. 1990); *Praxair, Inc. v. ATMI, Inc.*, 231 F.R.D. 457, 463 (D. Del. 2005). Courts consider the *Pennypack* factors: (1) prejudice or surprise to the opposing party; (2) the ability to cure the prejudice; (3) disruption to the orderly and efficient trial of the case or other cases; and (4) willfulness or bad faith. *See Konstantopoulos v. Westvaco Corp.*, 112 F.3d 710, 719 (3d Cir. 1997).

***Prejudice.*** Dr. Kelley’s new “two edges” opinion prejudices ON because it raises a new infringement theory after responsive expert reports have been submitted. Had PI presented this theory in its infringement contentions or opening report, ON’s expert could have considered it before submitting his rebuttal report. Instead, PI “sandbagged” ON with a new theory on reply.

***No cure.*** The prejudice cannot be cured. If the Court were to attempt to cure prejudice by granting a sur-reply report, ON would incur significant additional expenses to respond to PI’s new infringement theory. Moreover, allowing PI to change its theory after it sees ON’s response defeats the purpose of the scheduling order. Such a precedent would encourage parties to violate scheduling orders by waiting until reply to disclose new theories or evidence and disrupt the orderly administration of future cases in this district.

***Disruption to efficient trial of the case.*** After fact and expert discovery, the parties should be streamlining the case. Instead, PI now adds a new theory, making the case more rather than less complicated. Allowing a sur-reply to Dr. Kelley’s new opinions would result in additional delay to the case schedule.

***Willful conduct.*** There is no reason the “two edges” theory could not have been disclosed in Dr. Kelley’s Opening Report. Rather, it appears that this new theory was concocted to give Dr. Kelley an infringement opinion that does not suffer from the glaring error in his original opinion. Ultimately, the failure to disclose this “two edges” theory in PI’s Infringement Contentions and Dr. Kelley’s Opening Report is a problem of their own making, and PI is not prejudiced by striking that theory when it was presented improperly, months later on reply.

Dr. Kelley’s new edges-as-signals reply theory should therefore be stricken. But even if the Court were to allow Dr. Kelley and PI to present an infringement theory through Dr. Kelley that is not in PI’s infringement contentions (or Dr. Kelley’s opening report), the edges of a single

signal cannot satisfy the “oscillation signal” and “maximum duty cycle signal” limitations. PI’s two-from-one theory introduces at least three problems. The first and most elemental problem is that an edge is not a signal. An “edge” is a transition in a signal, but an edge is not the signal itself. It is a well-known feature of electrical circuits that electrical signals transition over time to reflect changes. These transitions are simply features of the signal, but are not the signal itself. To confirm this point, the Court need not look any further than Dr. Kelley’s reply report, where Dr. Kelley states that “[t]he oscillator in the accused ON products provides a signal that has two edges.” Ex. 19 at ¶ 5 (emphasis added). Thus, as Dr. Kelley acknowledges, a signal may have edges, but the edges are not signals in and of themselves. Another of PI’s technical experts in this case, Mr. Joseph McAlexander, confirmed that edges of a signal are not signals:

Q: You emphasized “single signal” in that last sentence – last answer.

A: Right.

Q: Why do you think that it is a single signal?

A: Because it’s only one input to an OR gate so it’s one signal.

Q: Could you describe the different edges of that logic signal as multiple signals?

A: No.

Q: You wouldn’t do that?

A: In a classic sense, no. I mean, you’ve got different — different levels of a signal, but you have a signal.

Ex. 20 at 330:22-331:11. PI and Dr. Kelley’s new edges-as-signals theory is entirely manufactured and thoroughly contradicted by both of PI’s technology experts in this lawsuit.

The second problem is that an edge cannot be a “maximum duty cycle signal.” Claim 20 requires that the maximum duty cycle signal have “a first state and a second state.” Ex. 11, Reexamination Certificate at 2:41-42 (reciting a “maximum duty cycle signal comprising a first state and a second state.”). As Dr. Kelley concedes, an edge is the transition in a signal from a first

state to a second state. *See, e.g.*, July 31, 2019 Kelley Dep., Ex. 21 at 92:20-23 (Dr. Kelley: “But there will be an edge, a transition and [sic] a digital signal from one state to another state -- low to high, some voltage to another voltage, whatever...”). Unlike a signal, which can have a first state and a second state, an edge is the path from a first state to a second state and does not itself have two states. Tellingly, Dr. Kelley does not identify the first and second states of the maximum duty cycle in his reply report (and that is because an edge does not have first and second states).

Third, an edge cannot be the “oscillation signal” of claim 20. The plain meaning of “oscillation signal” requires a signal that varies back and forth (i.e., oscillates). Ex. 13 at ¶ 46; Dictionaries, Ex. 22. An edge of a digital signal does not vary back and forth; rather, each edge only varies in one direction (either “rising” or “falling”). Ex. 13 at ¶¶ 47-48. Dr. Kelley admitted that the “first edge” and “trailing edge” vary in opposite directions:

Q: Would you say that the first edge that you referred to in paragraph 5 will always go in the opposite direction as the trailing edge that you've referred to in paragraph 5?

A: I can't really see any other options if it's a signal with two levels, which, in general, I think for all the ON parts it is. In most cases it is that I've seen; certainly in the '851 patent.

...  
So if the first one is characterized as a rising edge, the later one that sets the maximum duty cycle would have to be -- you could characterize it as a falling edge within the bounds of this discussion we're having.

Ex. 21 at 96:9-97:4. Dr. Kelley further admitted that in “most converters,” the “first edge” is a rising edge (*id.* at 89:9-17) and that a rising edge only transitions in a single direction, from low to high. *Id.* at 94:22-95:4 (“Q. [W]ould that rising edge [in ON's products] ever vary in any other direction aside from rising from low to high? A. Can you fill out your hypothetical? What other direction would it go?”) and 95:14-18 (Dr. Kelley: “Would a rising edge go from high to low? I think that would contradict the meaning of the word ‘rising.’”). According to Dr. Kelley's Reply

Report, the first edge is the oscillation signal. But the first edge does not oscillate because, as Dr. Kelley admits, it only changes in *one* direction. Alone, the first edge lacks the back-and-forth variation that defines oscillation. In sum, PI's new two-into-one theory is late and unavailing on the merits.

### **3. PI's alternative doctrine of equivalents theory is barred by prosecution history estoppel**

PI also asserts, in the alternative, that ON practices the "oscillator" limitation under the doctrine of equivalents. In particular, PI and Dr. Kelley repeat the following doctrine of equivalents allegation for all four representative ON products:

To the extent the accused device is not literally covered by the claim limitation, it performs substantially the same function (providing a structure for generating a jittered drive signal and for controlling the maximum duty cycle) in substantially the same way (by providing a variable frequency oscillator that controls the start and the maximum on time of the cycles of a drive signal) to achieve substantially the same result (controlling the frequency and maximum duty cycle of a drive signal with a simple internal circuit) and therefore is equivalent.

Ex. 16 at pp. 43, 46-48, and 51; Ex. 18 at pp. 43, 46, 48, and 51.

Prosecution history estoppel bars the doctrine of equivalents if the patent holder "narrow[ed] a claim 'to avoid the prior art, or otherwise address a specific concern . . . that arguably would have rendered the claimed subject matter unpatentable[.]'" *Spectrum Pharms., Inc. v. Sandoz Inc.*, 802 F.3d 1326, 1337 (Fed. Cir. 2015) (quoting *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 30, 117 S. Ct. 1040, 1049 (1997)). "When presented with a narrowing amendment that was made for reasons related to patentability, the Court must 'presum[e] that prosecution history estoppel applies.'" *Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, No. CV 13-1632-LPS, 2017 WL 3723934, at \*4 (D. Del. Aug. 29, 2017), *aff'd*, 748 F. App'x 330 (Fed. Cir. 2019) (quoting *EMD Millipore Corp. v. AllPure Techs., Inc.*, 768 F.3d 1196, 1204 (Fed. Cir. 2014)). The patentee bears the burden of rebutting this presumption, which it can

do only “by establishing one of three exceptions: (1) the equivalent was unforeseeable at the time of the application; (2) the rationale underlying the amendment bears no more than a tangential relation to the equivalent in question; or (3) there is some other reason suggesting that the patentee could not reasonably be expected to have described the equivalent.” *EMD Millipore*, 768 F.3d at 1203. “The application of prosecution history estoppel is a question of law.” *Insituform Techs., Inc. v. CAT Contracting, Inc.*, 99 F.3d 1098, 1107 (Fed. Cir. 1996).

As discussed above, PI added the “oscillator” limitation to claim 11 during the original prosecution to overcome prior art. That amendment narrowed the claim. Before the amendment, claim 11 (the predecessor to claim 20) did not require an oscillator that both provided an oscillation signal and “further provided” a maximum duty cycle signal. Thus, before the amendment, claim 11 covered an oscillator that provides only one signal. PI’s amendment narrowed the claim and excluded regulation circuits that provided only one signal from the scope of the claim.

PI’s amendment related to patentability because the amendment was made to overcome prior art. *See, e.g., Honeywell Int’l Inc. v. Hamilton Sundstrand Corp.*, 370 F.3d 1131, 1141 (Fed. Cir. 2004) (“no question that the original independent claims . . . were rejected for reasons related to patentability” because they were rejected “in view of the prior art”). PI amended the predecessor to claim 20 and argued that the prior art failed to disclose an oscillator providing the recited oscillation signal and maximum duty cycle signal. Ex. 14 at pp. 2, 9-11. And, as discussed at length above, PI continued to rely on those limitations to distinguish similar claims in the ’851 patent from prior art in an earlier lawsuit against Fairchild. Because PI’s narrowing amendment was made for purposes of patentability and because the amendment excludes the alleged equivalent, PI’s doctrine of equivalents theory is presumptively barred by prosecution history estoppel. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359, 1367-68 (Fed. Cir. 2003). As discussed



below, PI cannot rebut this presumption, and PI's doctrine of equivalents theory is therefore precluded as a matter of law. *Id.*

None of the three exceptions applies here. First, the alleged equivalent was not unforeseeable. Indeed, PI's expert argues that the alleged equivalent was "widely known." Ex. 19 at ¶ 6 ("[I]t was widely known in the field at the time of the '851 patent's priority date that an oscillation signal and maximum duty cycle signal can be provided on the same signal path.").

Second, the amendment was not tangentially related to the equivalent. This second exception only applies where the patentee proves that, "based on the prosecution history, the 'objectively apparent reason for the narrowing amendment' was only tangentially related to the equivalent." *Integrated Tech. Corp. v. Rudolph Techs., Inc.*, 734 F.3d 1353, 1359 (Fed. Cir. 2013) (quoting *Festo Corp.*, 344 F.3d at 1369). Neither silence nor ambiguous statements as to the reason for the narrowing amendment will overcome the presumption. *Helios Software, LLC v. SpectorSoft Corp.*, 2014 WL 4796111, at \*8 (D. Del. Sept. 18, 2014); *EMD Millipore Corp.*, 768 F.3d at 1204. Here, the prosecution (and subsequent litigation) history demonstrate that the narrowing amendments related directly to the alleged equivalent. PI now argues that the two signals it added by amendment are equivalent to a single signal. But PI previously represented to the Patent Office and this Court that the post-amendment claim requires an oscillator that provides **multiple** signals, where both signals have a frequency range based on a frequency variation signal, and the Patent Office and this Court relied on that representation. PI therefore cannot make the "strong showing" required to demonstrate that this "very narrow" exception applies. *See ICU Med., Inc. v. Ryemed Techs., Inc.*, 2013 WL 5435820, at \*9 (D. Del. Sept. 30, 2013).

Finally, there is no reason PI could not have expected its alleged equivalent. This third exception is "narrow," and is satisfied only "when there was some reason, such as the shortcomings

of language, why the patentee was prevented from describing the alleged equivalent when it narrowed the claim.” *Festo Corp.*, 344 F.3d at 1370. PI cannot show any reason why the patentee was prevented from describing PI’s alleged equivalent, in which the oscillator provides only a single signal. In summary, ON respectfully requests that the Court enter summary judgment that ON’s accused products have not infringed claims 20 and 16 of the ’851 patent, either literally or under the doctrine of equivalents.

**D. ON Has Not Infringed PI’s Expired ’366 Patent**

PI alleges that a single ON product—the NCP1250—infringes claims 1, 9, 10, 14, and 21 (and no other claims) of the now-expired U.S. Patent No. 6,229,366. All asserted claims of the ’366 patent require a “soft start circuit means.” Claim 1 is an example:

1. A pulse width modulated switch comprising:  
 . . .  
 a soft start circuit means for providing a signal instructing said drive circuit to disable said drive signal during at least a portion of said on-state of said maximum duty cycle signal . . .

*See* U.S. Patent No. 6,229,366, Ex. 23 at Reexamination Certificate, 1:31-46. Because PI and its expert failed to identify two required elements of the “soft start circuit means”—the pulse width modulation frequency signal and the soft start latch—PI cannot show that the NCP1250 infringes the ’366 patent.

**1. PI has not identified a pulse width modulation frequency signal that satisfies the requirements of the claimed “soft start circuit means”**

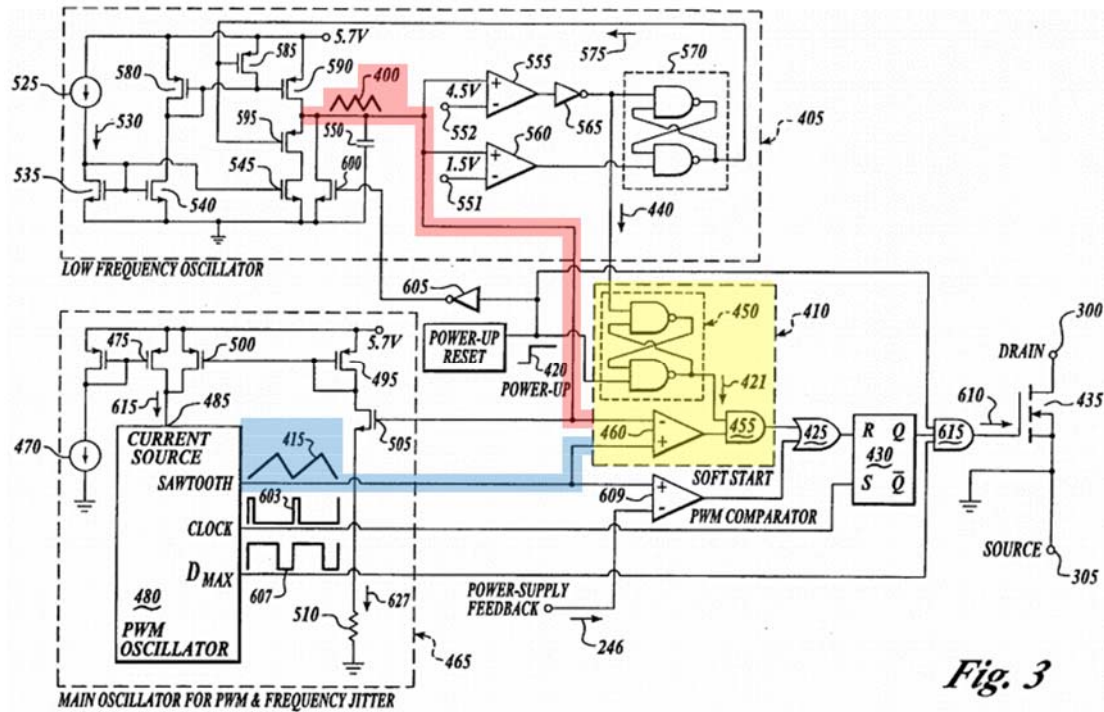
In PI’s first lawsuit in this district against Fairchild (civil action 04-1371), PI explained that throughout the lengthy prosecution and reexamination of the ’366 patent, PI “consistently maintained the scope of what it invented and claimed in the ’366 patent as the ‘soft start circuit’ has two distinguishing features – it is an *internal circuit* (*i.e.*, it does not rely on external components) and it *operates independently of the regulation control loop* (*i.e.*, unlike the prior art,

it does not function by modifying the feedback signal path).” *Power Integrations, Inc. v. Fairchild Semi. Int’l, Inc.*, Case No. 04-cv-1371-LPS (D. Del. Jan. 23, 2015) (D.I. 902), Ex. 24 at p. 6 (emphasis in original). PI now asserts the ’366 patent against a single ON product that has *neither* of those two “distinguishing features.”

Specifically, PI and its expert, Dr. Arthur Kelley, allege that the current sense signal in the accused NCP1250 product is a “well-known equivalent” that is “interchangeable with” the pulse width modulation frequency signal that is part of the claimed soft start circuit means and, therefore, the NCP1250 literally infringes the claim under 35 U.S.C. § 112 ¶ 6. Dr. Kelley’s Claim Chart on ’366 patent from his infringement report, Ex. 25 at p. 15. Alternatively, PI and Dr. Kelley contend that the current sense signal satisfies the pulse width modulation frequency signal limitation under the doctrine of equivalents. *Id.* The current sense signal of the NCP1250, however, is generated *externally* to the NCP1250 with an external resistor and is a feedback signal in the NCP1250’s control loop. Ex. 13 at ¶ 62-63. Because PI has repeatedly and unambiguously argued that the soft start circuit means in the ’366 patent must be (a) internal and (b) independent of any control loop, the current sense signal of the NCP1250 cannot be an equivalent, under either 35 U.S.C. § 112 ¶ 6 or the doctrine of equivalents. ON therefore respectfully requests that the Court enter summary judgment that ON does not infringe the ’366 patent.

**a. The “soft start circuit means” of claims 1 and 9 must be entirely internal and independent of any control loop.**

Figures 3, 6, and 9 of the ’366 Patent illustrate the claimed “soft start circuit means,” which has essentially the same structure in each of the three figures. As shown in Figure 3 (reproduced below), soft start circuit 410 (highlighted in yellow) receives a frequency variation signal 400 (outlined in red) and a pulse width modulation oscillation signal 415 (outlined in blue).



Ex. 23 at Fig. 3 (annotations added). In this case, the Court construed “soft start circuit means” as a means plus function limitation subject to 35 U.S.C. §112 ¶ 6 and held that the corresponding structure includes both the frequency variation signal (as shown in red above) and pulse width modulation signal (as shown in blue above). D.I. 111 at p. 3; D.I. 110 at p. 19. As discussed below, this structure must be both internal and independent of any control loops.

In civil action 04-1371, PI requested that the related “soft start circuit” claim element “be construed to mean ‘an internal soft start circuit that operates independently of the control loop.’”<sup>2</sup> Ex. 24 at p. 3; *see also id.* at p. 6 (PI: “[T]here should be little dispute given the history of the patent that the claimed ‘soft start circuit’ is limited to an ‘internal’ circuit.”) and Ex. 13 at ¶¶ 55-57. After evaluating PI’s arguments, the Court found that the “specification [of the ’366 patent] supports limiting the soft start circuit to internal soft start circuits as the specification discusses

<sup>2</sup> PI argued during claim construction in the 2004 Fairchild Lawsuit that “[t]he reexamined claim term soft start circuit means is substantially identical to the original claim term soft start circuit under either of Power Integrations’ proposed constructions.” Ex. 24 at p. 1.

problems with prior art soft start circuits requiring an external capacitor.” *Power Integrations, Inc. v. Fairchild Semi. Int’l, Inc.*, Case No. 04-cv-1371-LPS, Memorandum Opinion (D. Del. March 24, 2016) (D.I. 918), Ex. 26 at pp. 9-10. That finding was dictated by PI’s extensive disclaimers. During reexamination of the ’366 patent, PI repeatedly disclaimed soft start circuits that require an external, non-integrated component during reexamination of the ’366 patent. As part of that reexamination, the Patent Office rejected claims 1, 9, 10, and 14 (claim 21 had not yet been added) as anticipated by the TEA2262 Datasheet. Office Action in Reexamination, Ex. 27 at p. 4. In response, PI argued that TEA2262 “fails to disclose, teach or suggest a *soft start circuit* in the manner expressly claimed and described in the ’366 patent” because, unlike the ’366 patent, TEA2262 “requires an *external* capacitor for providing soft start functionality.” Response to Office Action in Reexamination, Ex. 28 at pp. 12-13 and 15 (emphasis in original); *see also id.* at 13 (“[A]n ‘object of an aspect of the present invention is directed to a pulse width modulated switch that that has *integrated soft start capabilities*.” (emphasis in original)) and *id.* at 11 (“[A]ll of the examples illustrated and described throughout the ’366 patent show that soft start circuit 410 is in fact a *complete* soft start circuit that is therefore *integrated* in the pulse width modulated switch.” (emphasis in original)).

In addition, PI emphasized during reexamination that the “soft start circuit *means*” must be both internal *and* independent of any control loops. After the Patent Office rejected several claims as invalid in view of the Keller reference (Office Action in Reexamination, Ex. 29 at pp. 2-8), PI amended its claims into means-plus-function form and argued repeatedly that the soft start circuit means must be both internal and independent of any control loops. According to PI:

[The] soft start circuit means taught in the ’366 patent provides an important improvement over conventional soft start circuitry because the soft start circuit means taught in the ’366 is a *completely independent structure from the feedback control loop circuits*, and its design and operation is,

therefore, independent of the particular feedback method used by the regulator and is *also independent of conditions outside the chip* that would impact the feedback signal characteristics.

Response to Office Action, Ex. 30 at p. 20 (emphasis added). PI repeated the same or similar disclaimers numerous times throughout reexamination.<sup>3</sup> See Ex. 32 at p. 33 (“All of the example structures described in the ’366 patent describe a ‘soft start circuit means’ using structures that . . . are independent of the regulation control loop.”); *id.* at p. 39 (“[T]he soft start circuit means structure taught in the ’366 is an independent structure from the feedback control loop circuits, and its design and operation is, therefore . . . independent of conditions outside the chip that would impact the feedback signal characteristics”); *id.* at p. 37 (“[T]he ‘soft start circuit means’ structure described for example in FIG. 3 of the ’366 patent shows an independent soft start circuit 410 that generates a signal *independent of the control loop* to disable the drive signal during at least a portion of the on-state of said maximum duty cycle.” (emphasis in original)).

In sum, the extensive prosecution and litigation histories of the ’366 patent establish that the “soft start circuit means:” (1) includes the disclosed frequency variation and pulse width modulation frequency signals; (2) is internal (i.e., cannot require external components); and (3) is independent of any control loop.

**b. The NCP1250 does not infringe under 35 U.S.C. § 112 ¶ 6.**

Dr. Kelley opines that the NCP1250 literally infringes under 35 U.S.C. §112 ¶ 6 because “[t]he current sense signal is a well-known equivalent to the ’366 patent’s disclosed pulse width modulation frequency signal.” Ex. 25 at p. 15. PI’s numerous clear disclaimers during prosecution (and before this Court) preclude Dr. Kelley’s infringement theory.

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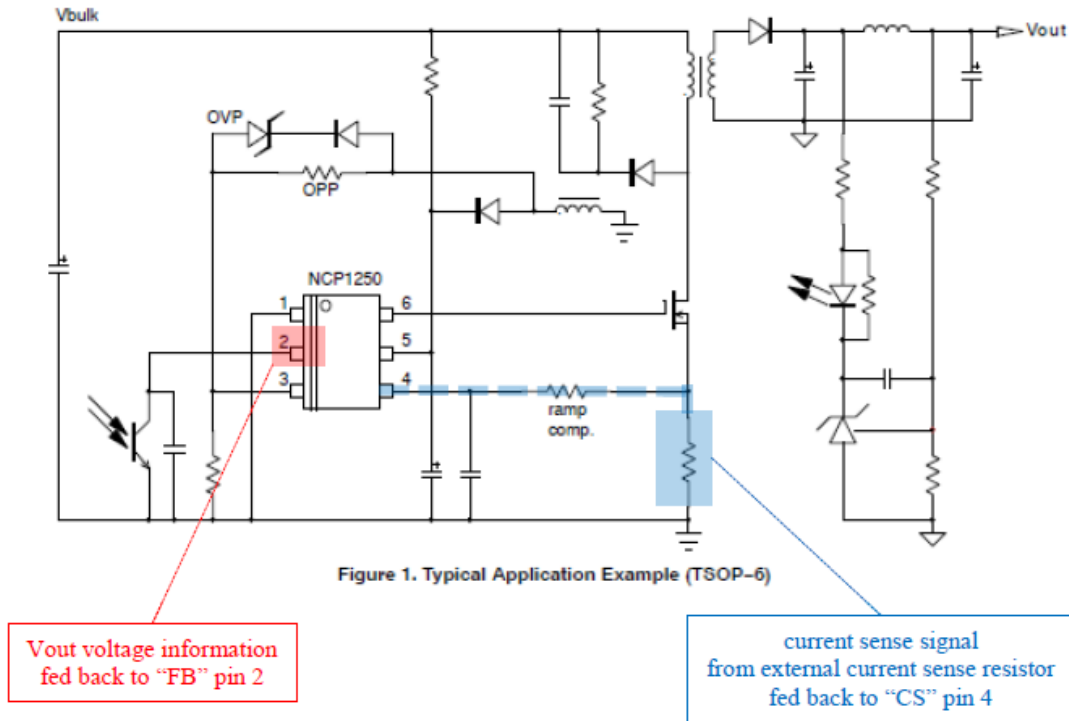
<sup>3</sup> PI even submitted a declaration of inventor Leif Lund that included the same disclaimers. Declaration of Leif O. Lund in Reexamination of the ’366 patent, Ex. 31 at p. 2-3.

“Under §112, ¶ 6, an accused device with structure not identical to the structure described in the patent will literally infringe the patent if the device performs the identical function required by the claim with a structure equivalent to that described in the patent.” *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1457 (Fed. Cir. 1998). However, “[j]ust as prosecution history estoppel may act to estop an equivalence argument under the doctrine of equivalents, positions taken before the PTO may bar an inconsistent position on claim construction under § 112, ¶ 6.” *Alpex Computer Corp. v. Nintendo Co. Ltd.*, 102 F.3d 1214, 1221 (Fed. Cir. 1996). “Clear assertions made in support of patentability thus may affect the range of equivalents under § 112 ¶ 6. . . . The relevant inquiry is whether a competitor would reasonably believe that the applicant had surrendered the relevant subject matter.” *Cybor Corp.*, 138 F.3d at 1457.

There can be no dispute that a competitor would reasonably believe, based on PI’s numerous, unambiguous statements to the Patent Office and this Court, that PI surrendered soft start circuits that either require external components or are not independent from a control loop. Because the NCP1250’s soft start circuitry includes **both** disclaimed features, it cannot be a § 112 ¶ 6 equivalent of the claimed “soft start circuit means.”

**(i) The accused “soft start circuit means” is not internal.**

Dr. Kelley opines that the “current sense signal” of the NCP1250 is an equivalent of the “pulse width modulation frequency signal” that, under the Court’s construction, is part of the recited “soft start circuit means.” Ex. 25 at p. 15. According to Dr. Kelley, the NCP1250 “uses a current sense resistor to provide a current sense signal.” Ex. 19 at ¶ 44. As shown in Figure 1 of the NCP1250 data sheet (reproduced with annotations below), however, the current sense resistor (highlighted in blue) is indisputably **external** to the NCP1250:



Ex. 13 at ¶ 63. As explained above, PI successfully argued during reexamination that the TEA2262 prior art reference does not satisfy its claims because TEA2262 “requires an external capacitor 110 for providing soft start functionality” (Ex. 28, p. 12-13 and 15) and repeatedly disclaimed soft start circuit means that require external components. A competitor would reasonably believe that PI’s numerous “clear assertions” during prosecution surrendered soft start circuits that require external passive components, such as the external resistors and capacitors required by the NCP1250. As PI itself admitted to this Court, “there should be little dispute given the history of the patent that the claimed ‘soft start circuit’ is limited to an ‘internal’ circuit.” Ex. 24 at p. 6. PI thus may not allege that the NCP1250’s current sense signal, which is generated by components external to the NCP1250, is an equivalent for purposes of § 112 ¶ 6, and the Court should grant summary judgment of no literal infringement for this reason alone. *Alpex Computer*, 102 F.3d at 1221.



**(ii) The accused “soft start circuit means” are also not independent of the control loop.**

ON’s expert, Dr. Regan Zane, has confirmed that the alleged “pulse width modulation frequency signal” (the current sense signal) is part of a current mode control loop in the NCP1250. *See* Ex. 13 at ¶ 62. PI’s expert does not dispute that opinion. Instead, Dr. Kelley opines that PI’s disclaimers require independence only from a *feedback* signal and that the current sense signal is a feed forward signal, not a feedback signal. *See* Ex. 19 at ¶¶ 43-45. Although ON disagrees that the current mode control loop in the NCP1250 is not a feedback loop, PI’s disclaimers extend to all control loops. As Dr. Kelley notes in his Reply Report, during reexamination, PI “explained that the invention’s circuit structures ‘do not modify a control loop signal *such as* the feedback signal to limit the duty cycle.’” *Id.* at ¶ 43 (quoting Ex. 30 at p. 19) (emphasis added). Similarly, PI further argued during reexamination that “[a]ll of the example structures described in the ’366 patent describe a ‘soft start circuit means’ using structures that . . . are *independent of the regulation control loop.*” Ex. 32 at p. 33. PI’s disclaimers require independence from *any* control loop and list a feedback loop as just one example of such a control loop.

PI does not dispute that the current sense signal in the NCP1250 is part of a control loop. Because a competitor would reasonably conclude from PI’s numerous disclaimers during prosecution that PI had surrendered coverage over soft start circuit means that are not independent of a control loop, the NCP1250 is not an equivalent under §112 ¶ 6 for this additional reason. *See Cybor Corp.*, 138 F.3d at 1457; Ex. 13 at ¶¶ 73-74.

**c. PI’s alternative doctrine of equivalents theory is barred by prosecution history estoppel.**

PI’s alternative argument that the current sense signal satisfies the “pulse width modulation frequency signal” limitation under the doctrine of equivalents is barred by prosecution history estoppel. PI twice narrowed its claims during prosecution. First, during reexamination, PI amended

the claim phrase “soft start circuit” to recite a “soft start circuit *means*.” That amendment alone forecloses the doctrine of equivalents. *See, e.g., J & M Corp. v. Harley-Davidson, Inc.*, 269 F.3d 1360, 1368 (Fed. Cir. 2001) (prosecution history estoppel barred application of doctrine of equivalents to means-plus-function element added by amendment). Second, during both original prosecution and reexamination, PI argued that its claims are limited to soft start circuits that are internal and independent of any control loop and those arguments amounted to a clear and unmistakable surrender of subject matter. *See Deering Precision Instr. v. Vector Distrib. Sys.*, 347 F.3d 1314, 1324-25 (Fed. Cir. 2003) (discussing argument-based estoppel). Both PI’s amendments and its narrowing arguments were made for purposes of patentability (specifically, to overcome cited prior art). Prosecution history estoppel thus presumptively applies. *See, e.g., Intellectual Ventures I*, No. CV 13-1632-LPS, 2017 WL 3723934, at \*4-5. Because PI cannot satisfy any exception to that presumption, PI’s alternative doctrine of equivalents theory is barred.

First, the alleged equivalent—involving the use of an external component to create a current sense feedback signal that is used for soft start in a current-mode control device—was not unforeseeable. PI’s expert offers no opinion that it was. Indeed, as discussed above, PI discussed external soft start components and current-mode control extensively during prosecution and reexamination, indicating that it was well aware of these alleged equivalents.

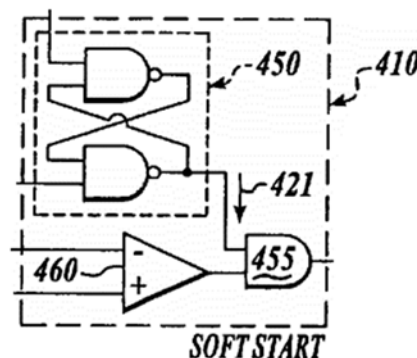
Second, PI’s amendments and arguments were not tangentially related to the equivalent. The prosecution history (and subsequent litigation history) demonstrates that PI’s amendments and narrowing arguments related *directly* to the alleged equivalent. PI amended its claims and argued that they exclude soft start circuitry that requires an external component or that is not independent of the control loop, and did so explicitly to distinguish over the prior art. PI now alleges equivalence over soft start circuitry that includes *both* disclaimed features. PI therefore cannot

make the “strong showing” required to demonstrate that this “very narrow” second exception applies. *See ICU Med., Inc.*, 2013 WL 5435820, at \*9.

Finally, there is no reason PI could not have expected its alleged equivalent. This third exception is “narrow,” and is satisfied only “when there was some reason, such as the shortcomings of language, demonstrating that the patentee was prevented from describing the alleged equivalent when it narrowed the claim.” *Festo Corp.*, 344 F.3d at 1370. PI cannot show any reason why the patentee was prevented from describing the alleged equivalent. Indeed, as explained above, the prosecution history reveals that PI was familiar with (and explicitly disclaimed) the features it now alleges are equivalent to its claims. And neither PI nor its expert has opined that any “other reason” would overcome the presumption of prosecution history estoppel. In summary, ON respectfully requests that the Court enter summary judgment that ON’s accused products have not infringed claims 1, 9, 10, 14, and 21 of the ’366 patent, either literally or under the doctrine of equivalents.

**2. PI has not identified a soft start latch, which is part of the corresponding structure of the “soft start circuit means”**

There is no dispute that the claimed “soft start circuit means” must also include a soft start latch. The corresponding structure illustrated in Figures 3, 6, and 9 includes a soft start latch 450 as part of the “soft start circuit means,” as shown in the excerpt of Figure 3 reproduced below:



Ex. 23,'366 patent at Fig. 3; *see also id.* at Figs. 6, 9; *id.* at 7:10-12 (“Soft start circuit **410**

comprises a soft start latch **450** . . .”). During reexamination, PI distinguished a prior art patent on the basis that it did not include a soft start latch. Appeal Brief (37 C.F.R. § 41.37) (Sept. 21, 2009), Ex. 34 at p. 22 (“Keller fails to disclose, teach or even fairly suggest a soft start circuit means structure *including a soft start latch 450* . . .” (emphasis added)). And Dr. Kelley acknowledged that the soft start latch has a “role” in the invention. Ex. 19, Kelley Reply Report at ¶ 49 (“I generally agree with Dr. Zane’s characterization of what the role of the ‘soft start latch’ is, in the context of the invention, as described in the ’366 patent specification . . .”).

In his Opening Report, however, Dr. Kelley did not identify an alleged soft start latch or any allegedly equivalent structure in the accused NCP1250. Dr. Kelley addressed this critical requirement of the claimed “soft start circuit means” for the first time in his Reply Report. In that Reply, Dr. Kelley still does not allege that a soft start latch is literally present in the NCP1250. But Dr. Kelley opined for the first time that circuitry including a multiplexer is “at least equivalent” to the soft start latch. Ex. 19, Kelley Reply Report at ¶ 51.

Dr. Kelley’s new opinion that multiplexer circuitry in the NCP1250 is equivalent to the soft start latch is improper on reply. *See* D. Del. LR 7.1.3(c)(2); *Oracle Am.*, No. C 10-03561 WHA, 2011 WL 5572835, at \*3. Dr. Kelley’s Opening Report never argues that any circuitry including a multiplexer is equivalent to the soft start latch of the claimed soft start circuit means. For the same reasons explained in connection with the ’851 patent, the *Pennypack* factors favor exclusion of Dr. Kelley’s new opinions. Allowing PI to pursue Dr. Kelley’s new theory would prejudice ON in a way that cannot be cured by allowing a sur-reply report and would unnecessarily delay and complicate this case. And PI’s attempt to inject this new theory through Dr. Kelley’s Reply Report was apparently an act of willful conduct. Dr. Kelley’s new theory that multiplexer circuitry in the NCP1250 is equivalent to the required soft start latch should therefore be struck.

Without Dr. Kelley's late-disclosed theory, PI has no evidence that the accused products include a soft start latch or its equivalent and summary judgment of non-infringement is appropriate for this additional reason. Accordingly, ON requests that the Court strike Dr. Kelley's new opinion on the soft start latch and enter summary judgment that the NCP1250 does not infringe the asserted claims of the '366 patent.

#### **E. ON Has Not Infringed PI's Expired '788 Patent**

PI asserts claims 1-3, 4, 7, and 13 of U.S. Patent No. 6,337,788 against a single family of ON products, the NCP105X products. Every asserted claim of the '788 patent requires a "timer . . . coupled to receive the feedback signal." As an example, claim 1 of the '788 patent recites:

1. A circuit for protecting a power supply from fault conditions, comprising:  
 . . .  
 a timer coupled to the switching device and coupled to receive a feedback signal from a feedback control loop coupled to the output of the power supply, . . .

Ex. 35, '788 patent at 7:46-53. The Court construed "timer" to be "a circuit element such as a capacitor or digital counter that provides a signal representative of a measurement of time." D.I. 110 at p. 22. That construction requires that the timer is *a circuit element* that provides a signal representative of a measurement of time (i.e., a circuit element that provides the required signal). And the claim language requires that this circuit element be "coupled to receive a feedback signal."

PI's infringement analysis for the accused products does not identify any "circuit element" that both (1) provides a signal representative of a measure of time and (2) is coupled to receive a feedback signal. Instead, PI, through its expert Dr. Kelley, relies on *multiple* circuit elements to satisfy the different requirements of the "timer" limitation. Dr. Kelley is express about this point in his reply report, where he opines that multiple circuit elements comprise the alleged timer. According to Dr. Kelley, "the 'timer' is not only the external capacitor connected to VCC," but

also includes “part of the fault detection circuitry, including the capacitor, hysteretic comparator, and Fault Detector block.” Ex. 19 at ¶ 105; *see also* Dr. Kelley’s Claim Chart on ’788 patent from his infringement report, Ex. 36 at p. 4. Thus, according to Dr. Kelley, the purported timer of the NCP105X products includes at least three elements: the external capacitor connected to the VCC input, the hysteretic comparator, and the Fault Detector block. Multiple circuit elements are not “*a* circuit element,” and none of Dr. Kelley’s separately identified elements both provides a signal representative of a measurement of time and is coupled to the feedback signal.

PI diverges from the Court’s claim construction because there is no circuit element in the NCP105X products that both “provides a signal representative of a measurement of time” and that is “coupled to receive a feedback signal.” Dr. Kelley opines that the external VCC capacitor outputs a signal representative of a measurement of time. NCP105X Datasheet, Ex. 37 at p. 3, 15, Fig. 2; Ex. 36 at pp. 5-6. But that external VCC capacitor is not coupled to the feedback signal as required by the claim. PI attempts to fix this deficiency by collecting additional NCP105X circuit elements into its alleged “timer” in a line-drawing exercise. As discussed above, this multi-component timer violates the construction’s requirement that the timer is “*a* circuit element.” But PI’s multi-component timer theory also raises another problem: the alleged “signal representative of a measurement of time” (the VCC signal) is not output from the alleged timer at all. Rather, the VCC signal is passed internally from one component of the alleged timer (the VCC capacitor) to another component of the alleged timer (the Fault Detector block). Thus, the alleged signal that is representative of a measurement of time in the NCP105X is entirely internal to PI’s alleged “timer” and is not “provide[d]” from the timer as required by the claim.

PI does not allege that ON infringes under the doctrine of equivalents; the only allegation of infringement is literal infringement. Because the “timer” requirement is not present in the

NCP105X, ON respectfully requests that the Court enter summary judgment that ON has not infringed the '788 patent.

#### **F. ON Has Not Infringed PI's Expired '475 Patent**

PI asserts claims 17 and 20-22 of U.S. Patent No. 6,456,475. Claim 17 is an independent claim and claims 20-22 depend directly or indirectly from claim 17. Like the '788 patent, the expired '475 patent is asserted against a single ON product, the NCP105X. Claim 17 requires the step of “timing the feedback signal:”

17. A method for protecting a power supply from fault conditions, comprising:

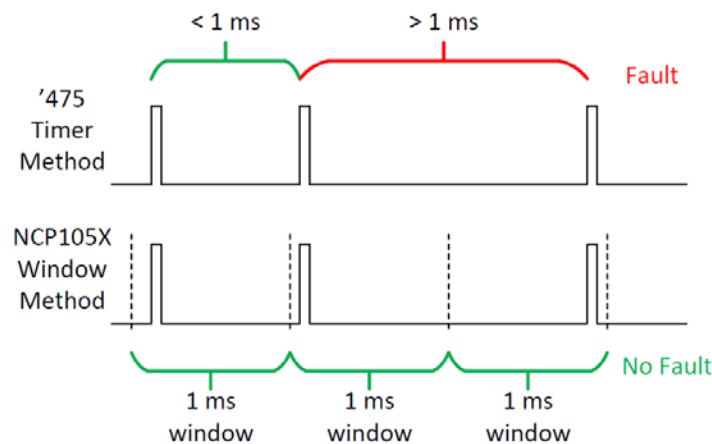
. . .  
timing the feedback signal to detect whether a fault condition exists in the power supply; . . .

Ex. 38, '475 patent at 8:48-61. The Court has construed “timing the feedback signal” as “measuring the amount of time that passed between two successive transitions of the feedback signal.” D.I. 110 at p. 23. That step is performed to evaluate whether there is a fault. PI cannot show that the NCP105X meets this requirement.

There is no dispute as to how the NCP105X works. The NCP105X looks for the presence of a feedback signal within a defined window of time. If the feedback signal is not present during that window, the NCP105X assumes that there is a fault and takes appropriate action. PI does not dispute that operation, but alleges that determining if a feedback signal is present during a window of time satisfies the requirement of “measuring the amount of time that passed between two successive transitions of the feedback signal.” Ex. 33 at p. 11-12. For his infringement analysis, Dr. Kelley quotes from the NCP105X data sheet: “If, during this timer period, no feedback has been applied to the control input, the fault detect logic is set to indicate an abnormal condition.” *Id.*; Ex. 19 at ¶ 65. It is important to note, however, what PI **does not** contend. PI never alleges—through Dr. Kelley or otherwise—that the NCP105X actually measures the amount of time

between two successive transitions of the feedback signal or that such a measurement is thereafter used for any purpose whatsoever in the operation of the NCP105X.

The NCP105X does *not* “measure[e] the amount of time that passed between two successive transitions of the feedback signal,” as required by the Court’s construction. It is not difficult to see that (a) looking for a feedback signal within a time window (which the NCP105X does) and (b) measuring the time between successive transitions of the feedback signal (which the claims require) are two different tests that could yield entirely different results in practice. The figure below illustrates this point.



In the example above, identical feedback signals are tested for fault conditions under two methods that both use 1 millisecond as the relevant temporal measure. In the “timer method” (reflecting the ’475 patent), the first transition in the feedback signal is followed by a second transition that occurs less than 1 millisecond after the first transition. No fault is detected up to that point. After the second transition, however, there is a delay of between 1 to 2 milliseconds before the third transition. Because that delay is more than 1 millisecond, it results in the detection of a fault. By contrast, the window method (exemplary of the NCP105X’s operation) divides time into discrete 1 millisecond windows and determines a fault only if no transition occurs within any such window. Although the third transition of the feedback signal occurs nearly 2 milliseconds after the second



transition, it falls just within the third 1 millisecond window and the “window method” therefore would not detect a fault condition.

Analogously, a mother might institute a system whereby her teenager is required to send regular text messages to verify his safety. This system could require a text no more than one hour after the previous text or, alternatively, a text within each designated one-hour window (e.g., between 8:00-9:00, between 9:00-10:00, and so on). If the teenager sent a first check-in text at 8:23, then a mother implementing the former system (timer method) might suspect a problem if the next text did not arrive until 9:57. A mother implementing the latter system (window method), however, would not suspect a problem because the second text arrived within the designated one-hour window of 9:00 to 10:00.

As these examples show, looking for a feedback signal in a window of time (as is done in the NCP105X) is simply not the same as measuring the amount of time between successive feedback signals (as is required by the ’475 patent). The NCP105X thus does not satisfy the “timing the feedback signal to detect whether a fault condition exists in the power supply” limitation and does not literally infringe any asserted claim of the ’475 patent.

PI does not allege that ON infringes under the doctrine of equivalents; the only allegation of infringement is literal infringement. Because the “timing the feedback signal” requirement is not present in the NCP105X, ON respectfully requests that the Court enter summary judgment that ON has not infringed the ’475 patent.

**G. ON has not willfully infringed any PI patent**

ON respectfully moves that the Court enter summary judgment that ON has not willfully infringed any PI patent. ON served PI with an interrogatory seeking PI’s contention as why ON’s alleged infringement has been willful. The entirety of PI’s substantive response, which was unverified, is set out below:

ON admits that it has known about Power Integrations' patents-in-suit, and Power Integrations provided ON with specific notice of infringement of the '851 and '366 patents during discussions in 2014. ON never denied infringement in response to those charges.

Moreover, as indicated in Power Integrations' complaint, ON learned of PI's patented '788 and '475 technology from their reverse-engineering of Power Integrations' TinySwitch chips; the individuals with knowledge of those activities include at least Jeff Hall and Jade Albercrack. ON's subsequent use of Power Integrations' patented technologies after copying PI's circuits further demonstrates that ON's infringement has been willful in this case.

Power Integrations' Responses and Objections to ON Semiconductor's Second & Third Sets of Interrogatories (Nos. 18-30), Ex. 39 at p. 12. This scant evidence cannot legally support any claim that ON has willfully infringed PI's asserted patents.

As to the '851 and '366 patents, PI's only factual basis comes from "discussions in 2014." While PI is not specific in its answer to ON's Interrogatory, these discussions are settlement discussions that occurred in 2014.<sup>4</sup> As ON explained in detail in Section B above, PI has affirmatively *disclaimed* any reliance on these 2014 communications and has argued (and testified) that those discussions are protected under Rule 408. PI cannot now contend that the 2014 communications provide a basis to find ON willfully infringed PI's patents. Aside from the 2014 communications, PI has offered no evidence of ON's notice of the '851 and '366 patents. Because PI cannot now use those communications to establish notice or willful infringement, PI's claim for willful infringement on the '851 and '366 patents must fail.

PI's evidence with respect to the '788 and '475 patent is also deficient. In its interrogatory response, PI argues that ON received notice of the '788 and '475 patents by allegedly reverse engineering PI's TinySwitch product. But the TinySwitch *does not practice* those patents.

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<sup>4</sup> It is also demonstrably untrue for PI to contend that ON "never denied infringement in response to those charges." At a minimum, ON denied infringement in its response to PI's counterclaim.

According to another interrogatory response, PI did not implement the patented features of the '788 and '475 patents until the later TinySwitch+ product. *See* Ex. 5 at p. 22. Moreover, ON's alleged knowledge of the TinySwitch **product** is not evidence that ON was aware of the '788 and '475 **patents**. Willful infringement requires more than just awareness of a technology in general. "To willfully infringe a patent, the patent must exist and one must have knowledge of it." *State Indus., Inc. v. A.O. Smith Corp.*, 751 F.2d 1226, 1236 (Fed. Cir. 1985). PI has never marked the TinySwitch, TinySwitch+, or any other product with the '475 and '788 patent numbers (*see* Ex. 6. at 241:2-11) and there is thus no reason to believe ON would have learned of those patents by allegedly examining the TinySwitch product. ON's alleged knowledge of the TinySwitch **product** is therefore irrelevant to determining willful infringement for the '788 and '475 **patents**. Because PI has not identified any evidence that ON had knowledge of the '788 and '475 patents before this lawsuit was filed, PI's claim for willful infringement on these patents must also fail.

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*/s/ John G. Day*

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